1

Overview of Cisco 3700 Series Routers

Cisco 3700 series routers are modular access routers with LAN and WAN connections that can be configured by means of interchangeable network modules and interface cards.

This chapter describes the features and specifications of the routers and includes the following sections:

Hardware Features

Cisco 3700 series includes the Cisco 3725 and the Cisco 3745 routers, which provide the following features:

- Cisco 3700 CompactFlash memory cards
- Advanced integration module (AIM) slots
- Support for double-wide network modules
- Two sockets for synchronized DRAM (SDRAM)
- User-configurable memory (shared memory or processor memory)
- Two Fast Ethernet ports
- High-speed console and auxiliary ports (up to 115.2 kbps)

Cisco 3725

Cisco 3725 routers include the following additional features:

- High-performance 240-MHz Reduced Instruction Set Computer (RISC) processor
- Up to 256 MB SDRAM
- Up to 128 MB CompactFlash memory

- Two slots for network modules, one of which can accommodate a double-wide network module
- Three interface card slots
- Two Cisco 3700 CompactFlash slots (one external and one internal)
- Two AIM slots
- Installation in a 19- or 23-inch rack or on a desk
- Support for Cisco Redundant Power System
- 2-rack unit (RU) chassis height

Figure 1-1 shows the rear panel of the Cisco 3725 router.

Figure 1-1   Rear Panel of the Cisco 3725 Router
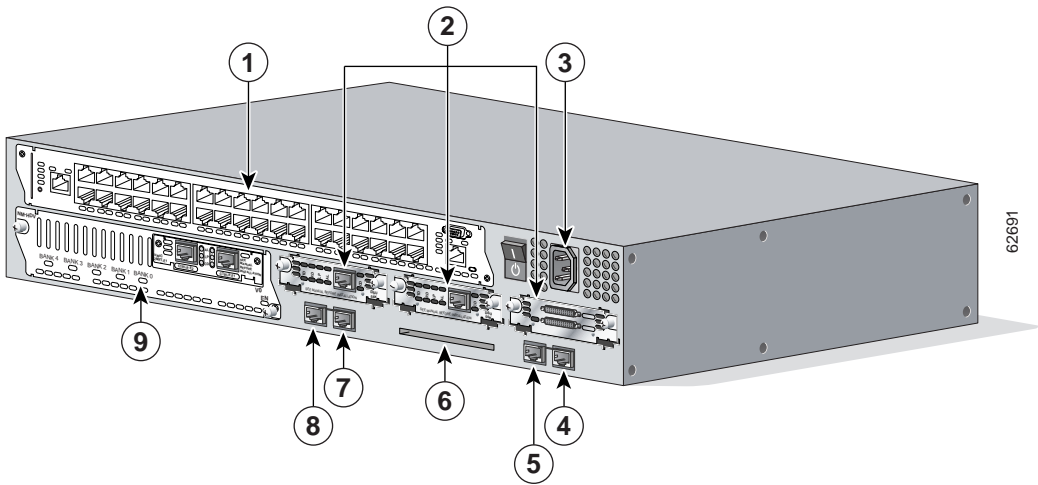
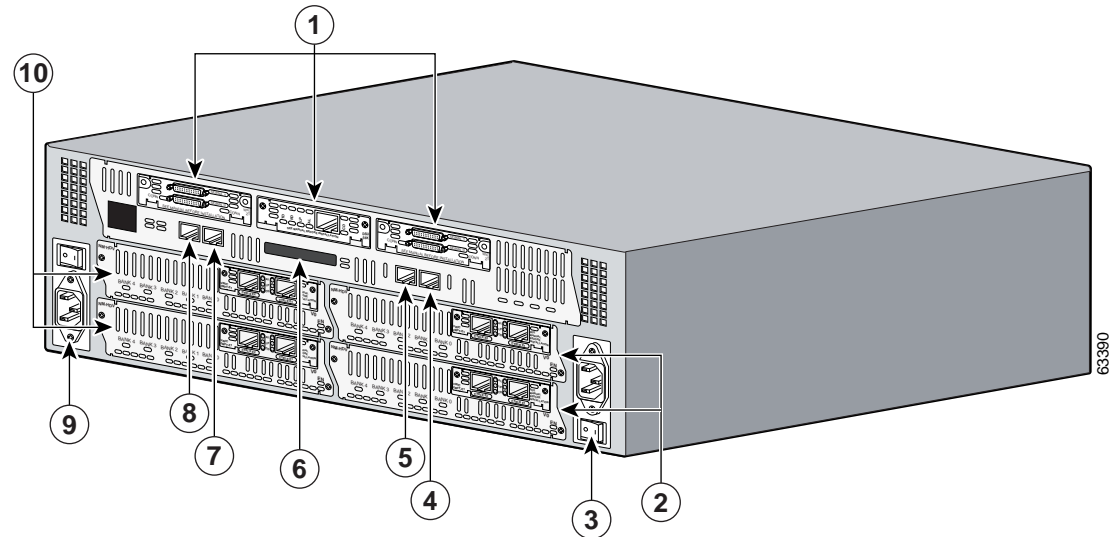| 1	Double-wide network module slot	6	CompactFlash memory card slot
2	Interface card slots	7	Fast Ethernet 0/0 port
3	Power supply	8	Fast Ethernet 0/1 port
4	Auxiliary port	9	Single-wide network module slot
5	Console port		

Cisco 3745

Cisco 3745 routers include the following additional features:

- High-performance 350-MHz RISC processor
- Up to 256 MB SDRAM
- Up to 128 MB CompactFlash memory
- Four slots for network modules that can accommodate up to two double-wide network modules
- Three interface card slots
- Two Cisco 3700 CompactFlash memory card slots (one external and one internal)
- Two AIM slots

- Installation in a 19- or 23-inch rack or on a desk
- Support for Cisco Redundant Power System
- 3-rack unit (RU) chassis height

Figure 1-2 shows the rear panel of the Cisco 3745 router.

Figure 1-2   Rear Panel of the Cisco 3745 Router

1	Interface card slots	**6**	Cisco 3700 CompactFlash memory card slot
2	Network modules	**7**	Auxiliary port
3	Power supply	**8**	Console port
4	Fast Ethernet 0/0 port	**9**	Power supply
5	Fast Ethernet 0/1 port	**10**	Network modules

Modules, Interface Cards, and Memory

- For information on installing network modules, see the following documents:
- *Quick Start Guide: Network Modules for Cisco 2600 Series, Cisco 3600 Series, and Cisco 3700 Series Routers*
- *Cisco Network Modules Hardware Installation Guide*

For information on installing WICs and VICs, see the following documents:

- *Quick Start Guide: Interface Cards for Cisco 1600, 1700, 2600, 3600, and 3700 Series*
- *Cisco Interface Cards Hardware Installation Guide*

For information on installing AIMs, see the following documents:

- *AIM Installation Quick Start Guide: Cisco 2600, Cisco 3600, and Cisco 3700 Series*
- *Installing Advanced Integration Modules in Cisco 2600 Series, Cisco 3600 Series, and Cisco 3700 Series Routers*

■ Memory

For information on installing DRAM, SDRAM, NVRAM, and CompactFlash memory, see:

- *Upgrading System Memory in Cisco 3700 Series Routers*
- *Installing Field-Replaceable Units in Cisco 3745 Routers*

For information on installing CompactFlash memory cards, see:

- *Installing and Formatting Cisco 2691, Cisco 3631, and Cisco 3700 CompactFlash Memory Cards*

Memory

Cisco 3700 series routers support the following types of memory:

- SDRAM—Stores the running configuration and routing tables and is used for packet buffering by the network interfaces. Cisco IOS software executes from SDRAM memory.
- NVRAM—Stores the system configuration file and virtual configuration register. For more information, see Appendix C, "Configuration Register." CompactFlash memory—Stores the operating system software image. You can increase CompactFlash memory by adding Cisco 3700 CompactFlash memory cards. See the *Installing and Formatting Cisco 3631 and Cisco 3700 CompactFlash Memory Cards* document.
- EPROM-based memory—Stores the ROM monitor, which allows you to boot an operating system software image from internal or external CompactFlash memory.

Table 1-1 and Table 1-2 list processor and memory specifications for Cisco 3700 series routers.

Table 1-1   Cisco 3725 Router Processor and Memory Specifications

Description	Specification
Processor	240-MHz PMC-Sierra RM7061A RISC processor
SDRAM	128–256 MB
NVRAM	56 KB
CompactFlash	32, 64, or 128 MB
Boot ROM	512 KB

Table 1-2   Cisco 3745 Router Processor and Memory Specifications

Description	Specification
Processor	350-MHz PMC-Sierra RM7000A RISC processor
SDRAM	128–256 MB
NVRAM	152 KB
CompactFlash	32, 64, or 128 MB
Boot ROM	704 KB

Interface Numbering

This section describes numbering conventions for interfaces on Cisco 3725 and Cisco 3745 routers.

Cisco 3725 Interfaces

Each individual interface (port) on a Cisco 3725 router is identified by number, as described in the following sections.

WAN and LAN Interface Numbering

The Cisco 3725 router chassis contains the following WAN and LAN interface types:

- Two built-in Fast Ethernet LAN interfaces
- Three slots in which you can install WAN interface cards (WICs)
- One single-wide slot (slot 1) in which you can install one network module
- One double-wide slot (slot 2) in which you can install one single-wide or double-wide network module

The numbering format is *interface-type slot-number/interface-number*. Two examples are:

- FastEthernet 0/0
- Serial 1/2

The slot numbers are as follows:

- 0 for all built-in interfaces
- 0 for all WIC interfaces
- 1 for interfaces in the single-wide network module slot
- 2 for interfaces in the double-wide network module slot

Interface (port) numbers begin at 0 for each interface type, and continue from right to left and (if necessary) from bottom to top.

Figure 1-3 shows an example of interface numbering on a Cisco 3725 router with these interfaces:

- A WIC in each WIC slot (containing interfaces Serial 0/0 and Serial 0/1 in physical slot W0, interface Serial 0/2 in physical slot W1, and interface BRI 0/0 in physical slot W2)
- A 2-port T1 network module in slot 1 (containing the following ports: T1 1/0 and T1 1/1)
- A 36-port EtherSwitch network module in slot 2 (containing the following ports: Fast Ethernet 2/0 through 2/35, and Gigabit Ethernet 2/0 and 2/1)
- Two built-in Ethernet 10/100-Mbps interfaces—Fast Ethernet 0/0 and Fast Ethernet 0/1

Figure 1-3   WAN and LAN Interface Numbering
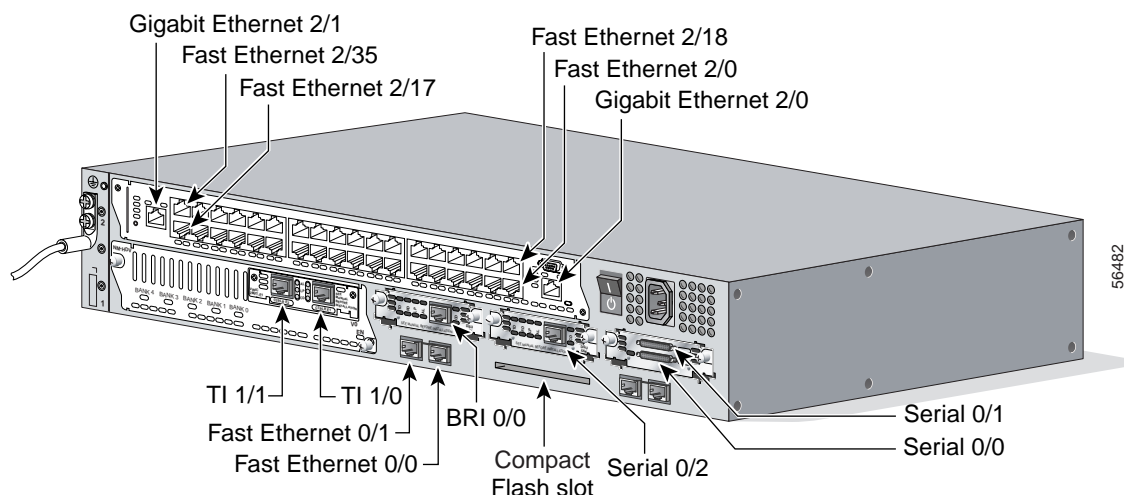
The slot number for all WIC interfaces is always 0. (The W0 and W1 slot designations are for physical slot identification only.) Interfaces in the WICs are numbered from right to left, starting with 0/0 for each interface type, regardless of which physical slot the WICs are installed in. Some examples are as follows:

- If slot W0 is empty and slot W1 contains a 1-port serial WIC, the serial interface in the WIC is numbered Serial 0/0.

- If slot W0 contains a 2-port serial WIC and slot W1 contains a 1-port serial WIC, the serial interfaces in physical slot W0 are numbered Serial 0/0 and Serial 0/1, and the serial interface in physical slot W1 is numbered Serial 0/2.

- If slot W0 contains a 2-port serial WIC and slot W1 contains a 1-port BRI WIC, the serial interfaces in physical slot W0 are numbered Serial 0/0 and Serial 0/1, and the BRI interface in physical slot W1 is numbered BRI 0/0.

Voice Interface Numbering

Voice interfaces are numbered as follows:

chassis-slot/voice-module-slot/voice-interface

If a 4-channel voice network module is installed in chassis slot 1, the voice interfaces are:

- 1/0/0—Chassis slot 1/Voice module slot 0/Voice interface 0

- 1/0/1—Chassis slot 1/Voice module slot 0/Voice interface 1

- 1/1/0—Chassis slot 1/Voice module slot 1/Voice interface 0

- 1/1/1—Chassis slot 1/Voice module slot 1/Voice interface 1

Cisco 3745 Interfaces

Each individual interface (port) on a Cisco 3745 router is identified by number as described in the following sections.

WAN and LAN Interface Numbering

The Cisco 3745 router chassis contains the following WAN and LAN interface types:

- Two built-in FastEthernet LAN interfaces
- Three slots in which you can install WAN or voice interface cards
- Four network module slots

The numbering format is *interface-type slot-number*/*interface-number*. Two examples are:

- FastEthernet 0/0
- Serial 1/2

The slot numbers are as follows:

- 0 for all built-in interfaces
- 0 for all WIC interfaces
- 1 for the lower-right network module slot
- 2 for the lower-left network module slot
- 3 for the upper-right network module slot
- 4 for the upper-left network module slot

If double-wide network modules are installed, the network module slots are numbered as follows:

- 2 for the lower double-wide slot
- 4 for the upper double-wide slot

Interface (port) numbers begin at 0 for each interface type, and continue from right to left and from bottom to top.

Figure 1-4 shows the rear panel of the Cisco 3745 with:

- A WIC in each of the three WAN interface card slots
- A single-wide network module in each of the four network module slots
- Two AC power supplies

The slot number for all WIC interfaces is always 0. (The W0, W1, and W2 slot designations are for physical slot identification only.) Interfaces in the WICs are numbered from right to left, starting with 0/0 for each interface type, regardless of which physical slot the WICs are installed in. Some examples are:

If physical slot W0 is empty and physical slot W1 contains a 1-port serial WIC, the serial interface in the WIC is numbered Serial 0/0.

If slot W0 contains a 2-port serial WIC and slot W1 contains a 1-port serial WIC, the serial interfaces in physical slot W0 are numbered Serial 0/0 and Serial 0/1, and the serial interface in physical slot W1 is numbered Serial 0/2.

If slot W0 contains a 2-port serial WIC and slot W1 contains a 1-port BRI WIC, the serial interfaces in physical slot W0 are numbered Serial 0/0 and Serial 0/1, and the BRI interface in physical slot W1 is numbered BRI 0/0.

Figure 1-4   Cisco 3745 Rear Panel
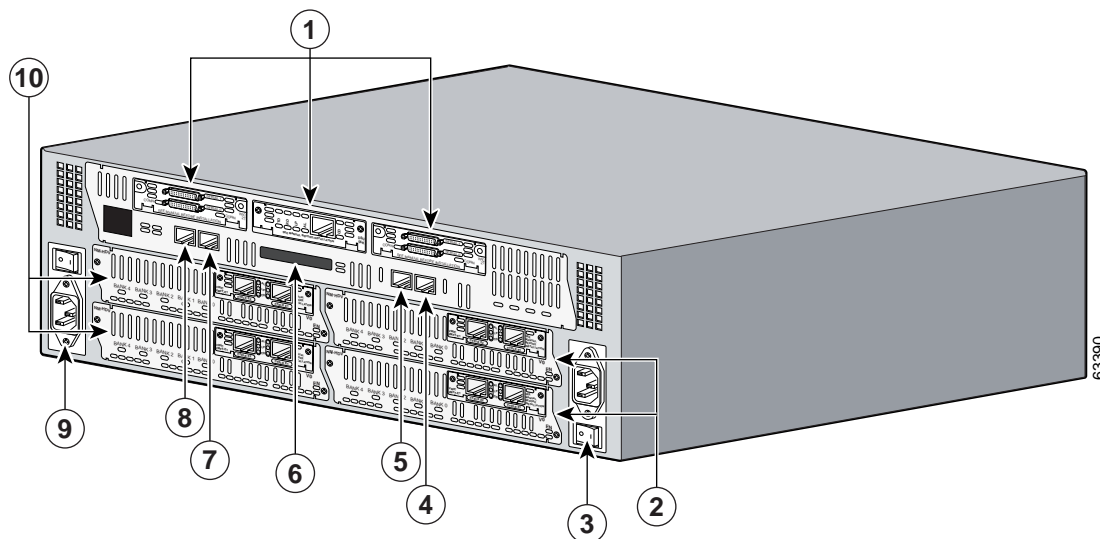
1	Interface card slots	6	Cisco 3700 CompactFlash memory card slot
2	Network modules	7	Auxiliary port
3	Power supply	8	Console port
4	Fast Ethernet 0/0 port	9	Power supply
5	Fast Ethernet 0/1port	10	Network modules

Voice Interface Numbering

Voice interfaces are numbered differently from the WAN interfaces described in the previous section. Voice interfaces are numbered as follows:

network-module-slot/voice-module-slot/voice-interface

If a 4-channel voice network module is installed in chassis slot 1, the voice interfaces are:

- 1/0/0—Network module slot 1/Voice module slot 0/Voice interface 0

- 1/0/1—Network module slot 1/Voice module slot 0/Voice interface 1

- 1/1/0—Network module slot 1/Voice module slot 1/Voice interface 0

- 1/1/1—Network module slot 1/Voice module slot 1/Voice interface 1

Power Supply Options

Table 1-3 lists the power supply options supported by Cisco 3700 series routers. Depending on the configuration specified when you placed your order, your router may not support all of these options.

Table 1-3   Power Supply Options for Cisco 3700 Series Routers

Power Supply Option	Cisco 3725	Cisco 3745
AC input power	Yes	Yes
DC input power	Yes	Yes
–48-V telephony power module to provide inline power to IP phones	Yes	Yes
Dual hot-swappable power supplies	No	Yes[1]
Compatible with Cisco Redundant Power System	Yes	Yes

1. Because of increased power consumption in high-temperature environments, a fully loaded Cisco 3745 router requires both power supplies when ambient temperature exceeds 104°F (40°C). Cisco 3745 routers operating under these conditions do not support the online replacement of power supplies.

Internal –48 V Telephony Power Modules

Cisco 3700 series routers provide inline power to IP phones connected to the router through Ethernet switch network modules. This power is supplied by special –48 V modules that connect directly to the chassis power supplies in Cisco 3725 and Cisco 3745 routers. A single –48 V power module meets the power needs of up to 36 IP phones. A Cisco 3745 router with two –48 V power modules installed provides redundant power for up to 36 IP phones. Figure 1-5 and Figure 1-6 show the –48 -V power modules as they appear when installed in Cisco 3700 series routers.

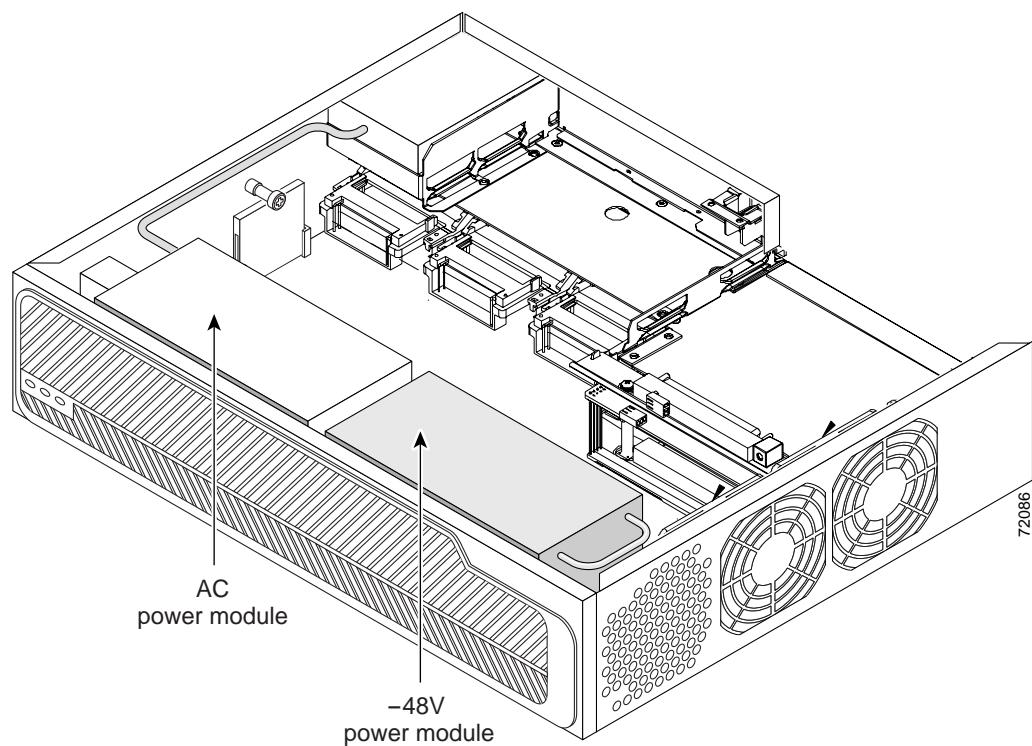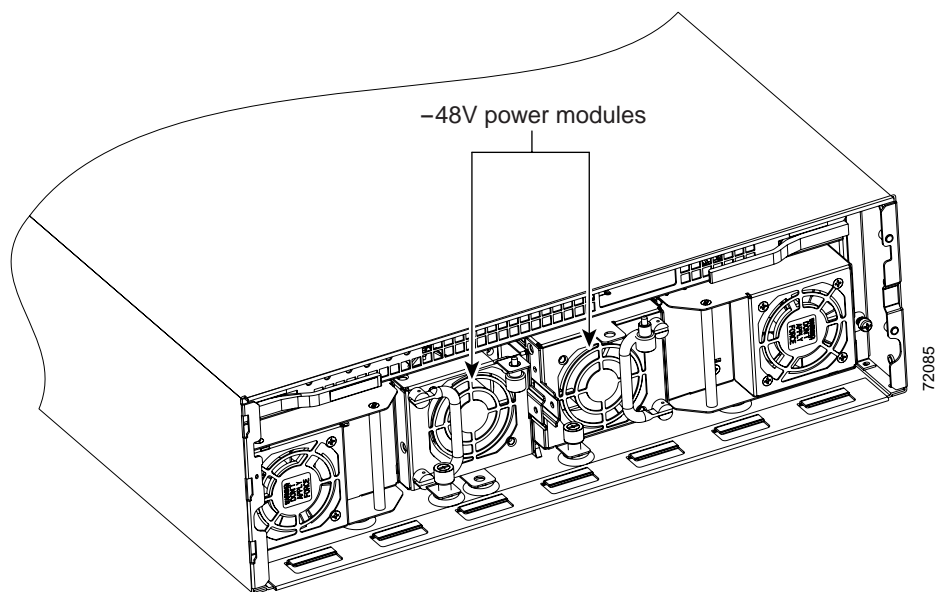*Figure 1-5*   *Cisco 3725 Router with Optional –48 V Power Module Installed*

AC
power module

–48V
power module

72086

Figure 1-6   *Cisco 3745 Router with Optional –48 V Power Modules Installed*

–48V power modules

72085

System Specifications

Table 1-4 and Table 1-5 list Cisco 3700 series system specifications.

Table 1-4   Cisco 3725 Router System Specifications

Description	Specification
Dimensions (H x W x D)	3.5 x 17.1 x 15.0 in. (8.9 x 43.4 x 38.1 cm), 2-RU chassis height
Weight	14 lb (6.4 kg)
Input voltage, AC power supply Frequency Input surge current (AC)	100 to 240 VAC, autoranging 47–63 Hz 50 A maximum, one cycle (–48-V power module included)
Input rating, DC power supply Input surge current (DC)	24–36 VDC, 9 A, positive or negative, operational from 18–36 VDC 36–60 VDC, 4 A, positive or negative, operational from 36–72 VDC 50 A, < 10 ms
Power dissipation	135 W (maximum)
Heat Dissipation	135W Maximum 460.661 BTU/hour, 495W Maximum 1689.089 BTU/hour
Console and auxiliary ports	RJ-45 connector
Operating humidity	5–95%, noncondensing
Operating temperature	32–104°F (0–40°C)
Nonoperating temperature	–40 to 162°F (–40 to 72°C)
Noise level	52 dBA (maximum)
Regulatory compliance	FCC Part 15 Class A. For additional compliance information, see the *Cisco 2600 Series, Cisco 3600 Series, and Cisco 3700 Series Regulatory Compliance and Safety Information* document that accompanied the router.
Safety compliance	UL 60950; CAN/CSA C22.2 No. 60950-00; IEC 60950; AS/NZS 3260; TS001

Table 1-5   Cisco 3745 Router System Specifications

Description	Specification
Dimensions (H x W x D)	5.25 x 17.25 x 15.00 in. (13.3 x 43.8 x 38.1 cm), 3-RU chassis height
Weight	32 lb (14.5 kg), including chassis and four network modules
Input voltage, AC power supply Frequency Input surge current (AC)	100–240 VAC, autoranging 47–63 Hz 80 A maximum, one cycle (–48-V power module included)
Input rating, DC power supply Operational between Input surge current (DC)	–48 to –60 VDC, 10 A maximum –38 to –75 VDC, 10 A maximum 50 A, < 10 ms

Table 1-5   Cisco 3745 Router System Specifications (continued)

Description	Specification
Power dissipation	230 W (maximum)
Heat Dissipation	230W Maximum 784.829 BTU/hour, 590W Maximum 2013.257 BTU/hour
Console and auxiliary ports	RJ-45 connector
Operating humidity	5–95%, noncondensing
Operating temperature	32–104°F (0–40°C)[1]
Nonoperating temperature	–40 to 162°F (–40 to 72°C)
Noise level	60 dBA (maximum)
Regulatory compliance	FCC Part 15 Class A. For additional compliance information, see the *Cisco 2600 Series, Cisco 3600 Series, and Cisco 3700 Series Regulatory Compliance and Safety Information* document that accompanied the router.
Safety compliance	UL 60950; CAN/CSA C22.2 No. 60950-00; IEC 60950; AS/NZS 3260; TS001

1. Because of increased power consumption in high-temperature environments, a fully loaded Cisco 3745 router requires both power supplies when ambient temperature exceeds 104°F (40°C).

Regulatory Compliance

For compliance information, see the *Cisco 2600 Series, Cisco 3600 Series, and Cisco 3700 Series Regulatory Compliance and Safety Information* document that accompanied the router.